

WHAT IS CLAIMED IS:

1. A semiconductor apparatus comprising:

serially-connected bodies comprised of a switch element  
5 and a resistance element respectively interposed between a  
plurality of terminals adjacent to one another;

terminals for a conduction test respectively connected  
to one and another ends of a series of the serially-connected  
bodies; and

10 a switch control terminal for collectively controlling  
all the plural switch elements.

2. A semiconductor apparatus as claimed in Claim 1, wherein  
each resistance value of the plural resistance elements  
in a series of the plural serially-connected bodies is  
15 weighted.

3. A semiconductor apparatus comprising:

serially-connected bodies comprised of a switch element and  
a resistance element respectively interposed between a  
plurality of terminals adjacent to one another;

20 a switch element on a power-supply potential side for  
connecting one end of a series of the serially-connected bodies  
to a power-supply potential;

a switch element on a ground potential side for connecting  
another end of a series of the serially-connected bodies to  
25 a ground potential;

a switch control terminal for collectively controlling  
all the plural switch elements;

a resistance element for dividing voltage serially  
connected to a group of the resistance elements in a series  
30 of the serially-connected bodies in order to divide voltage;

a logic element for detecting a potential variation at  
a point of dividing voltage between the resistance elements  
of a series of the serially-connected bodies and the

voltage-dividing resistance element; and

a terminal for a conduction test connected to an output side of the logic element.

4. A semiconductor apparatus, wherein

5 first and second semiconductor chips respectively having a plurality of chip-connecting terminals are mounted in a package; and

the respective chip-connecting terminals of the first and the second semiconductor chips are connected to each other via

10 wires; comprises:

switch elements alternately interposed on the first semiconductor chip side and second semiconductor chip side between the plural wires adjacent to one another;

15 terminals for a conduction test respectively connected to one and another ends of a series of the serially-connected switch elements; and

a switch control terminal for collectively controlling all the plural switch elements.

5. A semiconductor apparatus as claimed in Claim 4, wherein

20 a resistance element is serially connected to each of the plural switch elements.

6. A semiconductor apparatus as claimed in Claim 5, wherein each resistance value of the plural resistance elements is weighted.

25 7. A semiconductor apparatus, wherein

first and second semiconductor chips respectively having a plurality of chip-connecting terminals are mounted in a package; and

30 the respective chip-connecting terminals of the first and the second semiconductor chips are connected to each other via wires; comprises:

on the first semiconductor chip side,  
serially-connected bodies each comprised of a switch

element and a resistance element respectively interposed between the plural chip-connecting terminals adjacent to one another;

terminals for a conduction test connected to one and  
5 another ends of a series of the serially-connected bodies;  
and

a switch control terminal for collectively controlling all the plural switch elements.

8. A semiconductor apparatus, wherein

10 first and second semiconductor chips respectively having a plurality of chip-connecting terminals are mounted in a package; and

the respective chip-connecting terminals of the first and the second semiconductor chips are connected to each other via  
15 wires; comprises:

on the first semiconductor chip side,

switch elements interposed between the respective plural chip-connecting terminals and a terminal for a conduction test; and

20 a switch control device for selectively controlling on/off of the plural switch elements;

on the second semiconductor chip side,

diodes connected to the plural chip-connecting terminals in a forward direction with respect to a power-supply potential  
25 and in a reverse direction with respect to a ground potential;

on the first semiconductor chip side,

line switch elements interposed in lines of the respective plural chip-connecting terminals; and

a terminal for a conduction test connected to an on/off  
30 control terminal of the line switch elements.

9. - A semiconductor apparatus as claimed in Claim 8, wherein

a power-supply potential to be supplied to the first semiconductor chip and a power-supply potential to be supplied

to the second semiconductor chip are separately supplied thereto.

10. A semiconductor apparatus as claimed in Claim 8, wherein  
a ground potential to be supplied to the first  
5 semiconductor chip and a ground potential to be supplied to the second semiconductor chip are separately supplied thereto.

11. A semiconductor apparatus, wherein  
first and second semiconductor chips respectively  
having a plurality of chip-connecting terminals are mounted  
10 in a package; and  
the respective chip-connecting terminals of the first and the second semiconductor chips are connected to each other via wires; comprises:

serially-connected bodies each comprised of a switch  
15 element and a resistance element alternately interposed on the first semiconductor chip side and second semiconductor chip side between the plural wires adjacent to one another;

a switch element on a power-supply potential side for connecting one end of a series of the serially-connected bodies  
20 to a power-supply potential;

a switch element on a ground potential side for connecting another end of a series of the serially-connected bodies to a ground potential;

a switch control terminal for collectively controlling  
25 all the plural switch elements;

a resistance element for dividing voltage serially connected to a group of the resistance elements in a series of the serially-connected bodies in order to divide voltage;

a logic element for detecting that a potential at a point  
30 of dividing voltage between the resistance elements of a series of the serially-connected bodies and the voltage-dividing resistance element exceeds a predetermined value; and

a terminal for a conduction test connected to an output

side of the logic element.

12. A semiconductor apparatus, wherein

first and second semiconductor chips respectively  
having a plurality of chip-connecting terminals are mounted  
5 in a package; and  
the respective chip-connecting terminals of the first and the  
second semiconductor chips are connected to each other via  
wires; comprises:

serially-connected bodies comprised of a switch element  
10 and a resistance element alternately interposed on the first  
semiconductor chip side and second semiconductor chip side  
between the plural wires adjacent to one another;

a switch element on a power-supply potential side for  
connecting one end of a series of the serially-connected bodies  
15 to a power-supply potential;

a switch element on a ground potential side for connecting  
another end of a series of the serially-connected bodies to  
a ground potential;

a switch control terminal for collectively controlling  
20 all the plural switch elements;

a resistance element for dividing voltage serially  
connected to a group of the resistance elements in a series  
of the serially-connected bodies in order to divide voltage;

a logic element for detecting that a potential at a point  
25 of dividing voltage between the resistance elements of a series  
of the serially-connected bodies and the voltage-dividing  
resistance element falls below a predetermined value; and

a terminal for a conduction test connected to an output  
side of the logic element.

30 13. A semiconductor apparatus, wherein

first and second semiconductor chips respectively  
having a plurality of chip-connecting terminals are mounted  
in a package; and

the respective chip-connecting terminals of the first and the second semiconductor chips are connected to each other via wires; comprises:

5 serially-connected bodies each comprised of a switch element and a resistance element alternately interposed on the first semiconductor chip side and second semiconductor chip side between the plural wires adjacent to one another;

a switch element on a power-supply potential side for connecting one end of a series of the serially-connected bodies to a power-supply potential;

a switch element on a ground potential side for connecting another end of a series of the serially-connected bodies to a ground potential;

15 a switch control terminal for collectively controlling all the plural switch elements;

a resistance element for dividing voltage serially connected to a group of the resistance elements in a series of the serially-connected bodies in order to divide voltage;

20 a first logic element for detecting that a potential at a point of dividing voltage between the resistance elements of a series of the serially-connected bodies and the voltage-dividing resistance element exceeds a predetermined value;

25 a second logic element for detecting that a potential at a point of dividing voltage between the resistance elements of a series of the serially-connected bodies and the voltage-dividing resistance element falls below a predetermined value; and

30 terminals for a conduction test connected to output sides of the first and the second logic elements.

14. A semiconductor apparatus, wherein

first and second semiconductor chips respectively having a plurality of chip-connecting terminals are mounted

in a package; and  
the respective chip-connecting terminals of the first and the  
second semiconductor chips are connected to each other via  
wires; comprises:

5           on the first semiconductor chip side,

          serially-connected bodies comprised of a switch element  
and a resistance element respectively interposed between the  
plural chip-connecting terminals adjacent to one another;

          a switch element on a power-supply potential side for  
10       connecting one end of a series of the serially-connected bodies  
to a power-supply potential;

          a switch element on a ground potential side for connecting  
another end of a series of the serially-connected bodies to  
a ground potential;

15           a switch control terminal for collectively controlling  
all the plural switch elements;

          a resistance element for dividing voltage serially  
connected to a group of the resistance elements in a series  
of the serially-connected bodies in order to divide voltage;

20           a logic element for detecting a potential at a point  
of dividing voltage between the resistance elements of a series  
of the serially-connected bodies and the voltage-dividing  
resistance element; and

          a terminal for a conduction test connected to an output  
25       side of the logic element.

15.   A semiconductor apparatus as claimed in any of Claims  
1, 3, 4, 7, 8, 11, 12, 13 and 14 wherein

          the switch elements are formed from N-type or P-type  
MOS transistors, or N-type and P-type MOS transistors.

30 16.   A semiconductor apparatus as claimed in any of Claims  
1, 3, 5, 7, 11, 12, 13 and 14 wherein

          the resistance elements are formed from N-type or P-type  
transistors, or N-type and P-type MOS transistors.